

Quiz (3)

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Time duration: 7 minutes

A combinational circuit has 4 inputs (A, B, C, D) and 3 outputs (X, Y, Z). XYZ represents a binary number whose value equals the number of 1's at the input. For example if ABCD=1011, XYZ=011.

- Find the minterm expansions for X. $X = \sum m(15)$
- Find the maxterm expansion for Z. $Z = \prod M(0,3,5,6,9,10,12,15)$
- Find the minterm expansions for Z'. $\bar{Z} = \sum m(0,3,5,6,9,10,12,15)$
- Find the maxterm expansion for Y'. $\bar{Y} = \prod M(3,5,6,7,9,10,11,12,13,14)$

A	B	C	D	X	Y	Z
0	0	0	0	0	0	0
0	0	0	1	0	0	1
0	0	1	0	0	0	1
0	0	1	1	0	1	0
0	1	0	0	0	0	1
0	1	0	1	0	1	0
0	1	1	0	0	1	0
0	1	1	1	0	1	1
1	0	0	0	0	0	1
1	0	0	1	0	1	0
1	0	1	0	0	1	0
1	0	1	1	0	1	1
1	1	0	0	0	1	0
1	1	0	1	0	1	1
1	1	1	0	0	1	1
1	1	1	1	1	0	0